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In the course of study of the Iowa Ascomycetes, the Diaportheae, the group of fungi most closely related to the Valseae reported on in 1957, were investigated. The use of these section names in the Diaporthaceae followed Wehmeyer's (1926) treatment of the stromatic Sphaeriales, but during the course of these studies it became increasingly evident that cognizance of some of the more recent proposals in regard to the taxonomy of the Pyrenomycetes should be made, and the arrangement of the genera and species used in our studies be stated.

The arrangement of the Pyrenomycetes by Lindau (1897) has had wide acceptance during the first quarter of the century. Basically the form of the perithecium, its relation to its substrate and its wall characteristics were determining. Ascospore morphology, number, and color were important secondary characters. On this basis Lindau set up the Sphaeriales with eighteen families, but as the tools of investigation improved and developmental processes became more intensively studied, many discrepancies appeared and new bases for the disposition of the families and genera were proposed. The most far-reaching change was made by von Hoehnel (1917) who made the organization of the centrum primary; a change that removed many of the families earlier included in the Sphaeriales into other groups and reorganized the families within the order. Luttrell (1951) has summarized these changes and only the results need be noted here. The Diaporthaceae, Melanconidaceae and the Melogrammataceae were reorganized into the family Diaporthaceae in the Sphaeriales by von Hoehnel (1917) and accepted by Wehmeyer (1926) in the latter's monographic treatment of the stromatic Sphaeriales. Later, these families were transferred to two orders Valsales and Diaporthales by Nannfeldt and finally Gaeumann (1949) combined them into a single order Diaporthales.

This last change resulted from a new emphasis on determining characters, the structure of the ascus. Boudier (1907) pointed out the importance of the operculum in the ascus of the Discomycetes as a diagnostic character for taxonomic purposes and although its use was accepted in that group, some time elapsed until use was made of ascus characters in the Pyrenomycetes. In the United States J. H. Miller (1940) applied it to the Pyrenomycetes and Gaeumann

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(1949), von Arx and Mueller (1948) have used it in their papers on the same group.

Under this arrangement the members of the families in which the tip of the ascus contained a refractive ring (Diaporthaceae, Allantosphaeriaceae and the Gnomoniaceae of the older schemes), are placed in the Diaporthales. Von Arx combined the Gnomoniaceae with the Diaporthaceae and excluded (1954) the Valseae which he united with the Allantosphaeriaceae under the name Valsaceae. In order to avoid confusion in this series of studies of Iowa Ascomycetes the older scheme of classification has been followed; the Valseae were treated as a tribe of the Diaporthaceae (Gilman, Tiffany and Lewis, 1957) and the Diaportheae will be presented as a second tribe of the same family. The Gnomoniaceae will be treated as a separate family. Their leaf-inhabiting habit, their smaller perithecia and lack of stroma separate them from the larger stromatic forms of the Diaporthaceae.

The genera reported, as stated above, are those included by Wehmeyer (1926) in the Diaportheae with the addition of Phomatospora and Endoxyla which were added following von Arx and Mueller (1954). These latter two have asci with a refractive ring at their apices but are not stromatic. In Phomatospora the perithecia are rather small with short cylindrical mouths and usually immersed, while in Endoxyla, the perithecia are large with long necks for the ostioles and often become superficial by the weathering of the covering substrate tissue. This treatment differs from Endoxyla as interpreted by Ellis and Everhart (1892) in that the asci are cylindrical and the ascospores are straight with rounded ends, not allantoid. Von Arx and Mueller include the species of Ceratostomella with persistent asci in Endoxyla.

The Iowa Diaportheae will comprise 57 species in 12 genera on 48 species of host plants. An earlier paper (Gilman and McNew 1940) contained 12 species of Diaporthe, one species of Cryptodiaporthe, 2 species of Apioporthe and 2 species of Pseudovalsa. The other genera were not reported. Hence our collections over the intervening years have expanded our knowledge extensively. The following table summarizes our findings.

Table 1

Genera of Diaportheae, and Number of Species of Each on Iowa Host Plants

Genus	No. of species of fungi	No. of species of Host
Apioporthe	2	2
Cryptodiaporthe	3	5
Cryptospora	5	5
Cryptosporella	2	3
Diaporthe	24	38
Diaporthopsis	1	
Endoxyla	1	1
Melanconis	13	14
Phomatospora	1	1
Phragmodiaporthe	1	1
Prosthecium	3	2
Pseudovalsa	2	3
	58	51

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